

The Influence of Some Prebiotics (Actigen, Bio-Mos) Administered in Laying Quails' feeds on Growth Performances and Egg Quality

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Abstract. The research has carried out on 99 laying quails, divided in 3 groups, 33birds/group. The control group was fed the base diet, the first experimental group was fed the base diet supplemented with Bio-Mos Prebiotic, 0.12% and the 2nd experimental group was fed the base diet supplemented with Actigen Prebiotic, 0.08%. The experimental period was 26 weeks (from the 6th week of age until the 32nd week of age). The laying quails were individually weighted, at the beginning, the middle and the end of the experimental period. During the experiment the following indices were monitored: body mass evolution and survival rate, laying intensity, mean egg weight and the feed consumption/egg, weight of the main structural components of the eggs and their proportion, egg defects, chemical composition and the main morphological and physical parameters needed to assess the egg quality.

Keywords: prebiotics, Bio-Mos, Actigen, laying quails, eggs quality, performances

Introduction. Both Actigen and Bio-Mos belong to the prebiotics class, containing mannan-oligosaccharides. Biom-Mos is derived from the mannans on the cell surface from the *Sacharomyces cerevisiae* yeast and Actigen is a Bio-Mos derivative. In other words, Actigen is a more concentrated version of Bio-Mos.

Researches carried out globally on laying poultry proved that Bio-Mos supplementation of feed increases the egg laying intensity, feed conversion, the average egg weight and the egg quality parameter, also reducing mortality rates.

Also, researches using Actigen as feed supplement in laying poultry feed led to improvment of the body weight, feed consumption, feed conversion ratio and the reduction of losses.

Aims and Objectives. The aim of this research was to highlight the possible influence of prebiotics (Bio-Mos and Actigen) administered in the feeds for lying quails on production performances and egg quality parameters.

Materials and Methods. The research has been carried out on 99 laying quails, over a period of 26 weeks (from the 6th week of age until the 32nd week), assigned to 3 groups, consisting of 33 birds/group. The 3 groups were housed in the same environment condition, the only difference being the feed administered: the control group was fed the base diet, the first experimental group was fed the base diet supplemented with 0.12% Bio-Mos and the second experimental group was fed the base diet supplemented with 0.08% Actigen. The laying quails were weighted individually at the beginning, at the middle and at the end of the experiment

During the experiment the following indices were monitored: body mass evolution and survival rate, laying intensity, mean egg weight and the feed consumption/egg, weight of the main structural components of the eggs and their proportion, egg defects, chemical

composition and the main morphological and physical parameters needed to assess the egg quality.

Results and Discussions. The positive effects of prebiotics (Bio-Mos and Actigen) in the feeds for laying quails, throughout the experimental period, are presented in *Table 1*.

Tab. 1

Results of Bio-Mos and Actigen supplementation in laying quails feeds

Issue	LM	L1E (0.12% Bio-Mos)	L2E (0.08% Actigen)
Final body weight (g) (32 weeks of age)	250±5.48	267.80±6.42	281.43±5.27***
Laying intensity (%)	70.17±2.17	78.46±2.89*	80.78±2.73*
Average egg weight (g)	12.07±0.12	12.37±0.14	12.52±0.13*
Average feed consumption (g)/ 100g egg mass	354.76±10.9	295.58±10.42***	284.64±10.21***
Feed conversion index / egg (g)	43.09±1.19	36.87±1.17**	35.77±1.10***
Average egg white weight (g)	7.07±0.063	7.38±0.078*	7.31±0.099
Egg volume (cm ³)	10.74±0.31	11.55±0.27	12.67±0.32**
Broken, cracked, soft shelled eggs (%)	4.14	2.34	1.96
Losses (%)	15.15	6.06	3.03

*- p<0.05-significant; **- p<0.01-distinctly significant; ***- p<0.001-very significant
LM-control group; L1E-Bio-Mos; L2E-Actigen

As the data in *Table 1* shows, Bio-Mos supplementation enhanced laying intensity, the daily feed consumption/100g egg mass, the feed conversion index (similar results -Gracia *et al.*, 2004; Şara *et al.*, 2006) and the average egg white weight, while reducing the percentage of eggs with defects (broken, cracked or soft shelled eggs) and also reducing losses (similar results were obtained by Dimovelis *et al.*, 2004; Kocher *et al.*, 2005).

At the same time, Actigen supplementation enhanced the final body mass, the laying intensity, the average egg weight, the average feed consumption/100g egg mass, the conversion index and the egg volume. The use of Actigen significantly reduced the percentage of eggs with defects and the mortality rates (similar results -Lea *et al.*, 2011; Munyaka *et al.*, 2011).

Conclusion. The results recorded after using these prebiotics (Bio-Mos and Actigen) confirm the favorable influence of these additives on growth performances and egg quality in laying quails.

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